Minutes of the Joint Plan Teams for the Groundfish Fisheries of the Gulf of Alaska (GOA) and Bering Sea Aleutian Islands (BSAI)

November 13 - 16, 2012

North Pacific Fishery Management Council
605 W 4th Avenue, Suite 306
Anchorage, AK 99501

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Lowell Fritz	AFSC NMML	Chris Lunsford	AFSC ABL
Chris Siddon	ADF&G	Jon Heifetz	AFSC ABL
Alan Haynie	AFSC REFM	Mike Dalton	AFSC REFM
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Mary Furuness	NMFS AKRO Juneau	Paul Spencer	AFSC REFM
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Introduction

The Joint meeting of the Gulf of Alaska (GOA) and Bering Sea Aleutian Islands (BSAI) Groundfish Plan Teams convened Tuesday November 13, 2012 at 9:00 am at the Alaska Fisheries Science Center in Seattle, Washington. Introductions were made. New Plan Team members were welcomed (Ian Stewart on the GOA Plan Team and Chris Siddon on the BSAI Team). The Joint Groundfish Plan Teams adopted a revised agenda.

Council update

Total Catch Accounting: The Teams discussed progress on accounting for catches other than those taken in the groundfish fisheries ("other" catches), as required for all assessments to comply with ACL requirements. In response to questions regarding why the 2012 information is, in some cases, more complete than the 2011 information, Mary Furuness noted that NMFS-AKRO staff are still working on compiling some of the 2011 data and most of the data from before 2010.

The Teams recommend that the whole time series of each category of "other" catches be made available on the NMFS "dashboard," so that they may be listed in all SAFE chapters.

The comment period for the Advance Notice of Proposed Rulemaking on potential adjustments to the National Standard 1 Guidelines ended September 15, 2012. NMFS AFSC and Alaska Region staff will participate in national work group meetings to discuss this proposed rulemaking. The Total Catch Accounting work group will reconvene in spring 2013 to assess any new information on total catch accounting that may result from those national discussions and report to the Plan Team in September 2013. A planned NMFS discussion paper on accounting for research catches also has been rescheduled to a future Council meeting, pending further development on these issues.

Stock structure template: In response to an October 2012 Council request, the Plan Teams discussed how to improve their consideration of management and policy implications of stock structure when the Teams consider area-specific OFLs and ABCs. The Council specifically requested that the Teams take a broader look at area-specific management. The Teams have not yet directly addressed the management implications of the stock structure templates, but recognized the need to do so in order to provide recommendations to the Council once there is some indication of stock structure. Examples of stocks for which the Teams have found evidence of stock structure include BSAI and GOA blackspotted/rougheye rockfishes, BSAI northern rockfish, GOA Pacific ocean perch, and BSAI Pacific cod.

Paul Spencer clarified that the 2010 Stock Structure Working Group report recognized the management implications of considering stock structure for recommending area-specific OFLs and ABCs. To date, most evaluations of stock structure have not included an examination of management and policy implications of various spatial management options. Jane DiCosimo suggested that one way to respond to the Council request would be to expand the work group membership (which currently includes SSC members, Team members, NMFS staff, and academics) and to reconvene to evaluate management implications of area-specific OFLs and ABCs. The work group would report to the joint Teams in September 2013 to allow the Teams to have a broader discussion on management implications. Mary Furuness suggested that management measures other than area-specific OFLs or ABCs could also be used by NMFS.

The Teams discussed the history of spatial management of harvest specifications in the GOA; regional quotas were established based on historical INPFC areas and maintained due to the relative location of many Alaskan communities, rather than specific biological concerns about the stocks. The Teams acknowledged the need to revisit their September 2010 recommendation regarding stock structure, which states, "The Teams concurred with the Working Group's recommendation to divide quotas as a default measure in general but modified the recommendation as follows: allocate the Acceptable Biological Catch (ABC) across subsets

of NMFS areas within the BSAI and GOA management areas as a precautionary measure to the extent practicable."

NPFMC member John Henderschedt commented that it will be important to consider both the in-season management implications as well as broader policy implications regarding the policy trade-offs in recommendations for area-specific management decisions.

The Teams recommended no change in this harvest specification cycle and recognized the need for future considerations that are broader than current considerations. There are two alternatives for moving forward. One is to broaden the membership of the work group. Team members were requested to communicate to Paul Spencer if they wish to participate. Alternatively, the AFSC could host a workshop to develop management and policy metrics for review by the Teams and SSC. Examples of different stock structure results could be presented and discussed (for example, GOA POP, BSAI rockfish stocks). Participants could include Team members, work group members, and fishery managers/Council members. The workshop would be more inclusive than the working group and would be open to the public. Perhaps some combination of a restructured working group and a workshop would best address Council concerns.

Through the Joint Plan Team report at the December 2012 Council meeting, the Teams will request the SSC and Council for more direction on specific task(s) for the work group.

Sablefish

Dana Hanselman presented the sablefish assessment. The 2012 assessment included relative abundance and length data from the 2012 longline survey, relative abundance and length data from the 2011 longline and trawl fisheries, age data from the 2011 longline survey and 2011 longline fixed gear fishery, and updated 2011 catch and estimated 2012 catch.

Catch over time is decreasing, especially in the Bering Sea in recent years. The longline survey index decreased 21% in 2012 following an 18% increase from 2008-2011. Survey RPNs were down in all areas in comparison to 2010 and 2011 except in the southern southeast where stations were similar. The gully index did not show nearly the increase in survey RPN as the slope stations in 2011, but is very similar to the slope RPNs in 2012. The IPHC survey saw a slight uptick in 2011 but not as high as the AFSC longline survey. The 2012 Aleutian Island bottom trawl survey and 2012 Bering Sea slope survey biomass estimates decreased slightly.

Factors contributing to reduced catches from the 2012 survey are uncertain. Possible causes could be bad bait, increased depredation, or increased fishing vessel interactions; but none of these factors were evident in 2012. Other causes could be environmentally driven such as fish moving out of survey areas, temperature changes, changes in prey density, etc. Some potential mechanisms were discussed.

A preliminary look at 2012 fishery data (from observer data) indicates the fishery CPUE was also lower in 2012. It appears the average depth fished in the fishery was greater, which differs from the survey trend. Heat maps were shown comparing sablefish by depth stratum in the survey from 1990-2012. The general pattern indicates the deep stratum in recent years did not have as high CPUE (numbers) as the shallower stratum in earlier years.

For 2012 there were no model changes. Model fit to longline survey RPN is below the high 2010 and 2011 surveys and is above the 2012 survey in response. The 2011 model fit to survey ages underestimates the 2008 year class which is expected as this is when it is first being observed in the age comps. Survey length model fits are also underestimating the 2008 year class but model fits will likely improve if this year class persists. Model fits to fishery data do not fit the recent low years of fishery CPUE.

The 2012 updated assessment model shows a slight decrease in recent recruitment and a slight decrease in spawning and total biomass from previous projections. Trends in total biomass show a slow decrease since 2003. Spawning biomass had an increase due to 2010 and 2011 surveys but is now trending down due to the 2012 survey. Retrospective analysis shows spawning biomass turning downward - the retrospective pattern dissipated in last few years and is disappearing. This pattern may be a result of data and unidentified processes that have been improved in recent years.

The authors' recommended model estimates the population at 37% of unfished spawning biomass. The 2013 ABC recommendation is 16,230 t which is about a 6% decrease from last year (17,240 t). This projection is expected to decrease in the future unless we start seeing average recruitment.

An effort is underway to improve the ecosystem considerations for sablefish by establishing a feedback loop between the ecosystem chapter and specific stock assessments. A suggested mechanism is to create species-specific report cards. The suggested example for the sablefish process is to identify spatial/temporal patterns in stock data which could have an effect on the ecosystem, develop a conceptual model to explain trends in time series, and also to consider habitat availability, climate, ecosystem, anthropogenic effects. It is anticipated that a draft document with a framework for an improved ecosystem consideration section could be presented at the 2013 Sept. Plan Team meeting.

The Team noted several concerns regarding the concept of an individual assessment report card. One, the approach is a good idea as it forces people to update this section each year and helps reviewers quickly focus on changes. However, SAFE guidelines have already been established and authors are already challenged just meeting all requests by November so asking authors to develop a conceptual model is asking a lot. Focusing on ecosystem concerns at some other time of the year, or asking authors to summarize any existing conceptual models rather than developing their own conceptual models would be more reasonable.

The Teams recommend establishment of an ecosystem/assessment committee to help set up an example report card that is designed to allow the authors to fill in the blanks as an update rather than develop new conceptual models and to have in-house discussion on this topic before future presentations to the Plan Teams.

The author presented future plans for the assessment which were to: 1) leave the assessment model as is; 2) work on a modeled survey index to incorporate whale depredation in the survey abundance index; 3) incorporate work a current post-doc is doing modeling fishery data; and 4) collaborate with a new doctoral project at UAF working on a spatially-explicit model. Also, a CIE review may occur in 2014. The author indicated they would like the Teams to review the new survey index model before the CIE review so it may be presented at the September 2013 Plan Team meeting.

A member of the public asked if tagged fish played a role in stock assessment because his vessel turns them in but gets little recognition for that. The author responded that tag information helps to understand movement and ultimately stock structure for informing management decisions on ABCs etc. The author also responded to a public question that the Alaska sablefish assessment does utilize tag information when fish tagged in Alaska are caught in other areas (British Columbia, West Coast) but that the authors do not have access to fish tagged in BC. Another member of the public inquired if enough otoliths are being collected and aged. The author responded that the age compositions as a whole are robust, but, if we moved to a spatially explicit analysis and separated out management areas then we may not have large enough sample sizes.

Team members suggested that, since fishery catch rates showed some patterns by depth, something should be done to account for changes in depth and fishing distribution, such as relating selectivity to depth fished. Since the age compositions indicated a greater number of the plus group being caught, this may be an argument for availability of bigger, old fish in the fishery. Another comment suggested that the price difference by size grades would affect what the fishery is targeting and that it may explain differences seen between the survey and the fishery. There was agreement among those commenting that depredation likely does not influence how deep the fishery operates since the difference in depths is such a short distance off the continental slope. A sablefish fisherman commented that size-based prices have a big influence on what size of fish he tries to catch.

The Teams recommend that the authors investigate time-varying selectivity in relation to some of the issues seen in the retrospective pattern.

The Teams concurred with the author's recommended ABC, OFL, and apportionment. The Teams discussed the moderate shifts in the apportionment by area. From a biological perspective these are not of concern because sablefish have relatively high movement rates.

The Teams commend the authors for responding to Team requests regarding total catch accounting and retrospective analysis.

Economic SAFE Report

The Economic SAFE report was presented by Ron Felthoven and Ben Fissel of the Economics and Social Sciences Research Program (ESSRP) of the AFSC in Seattle. This year the SAFE has gone through what Ron called a "rebuild." Terry Hiatt, who was in charge of the Economic SAFE report for many years, retired and the ESSRP has worked to replicate and extend what has been done previously. Starting this year, AKFIN is generating much of the information contained in the reports while economist Dr. Ben Fissel is responsible for updating the analytical content and format of the document. Having AKFIN automate the queries to fill in much of the tables in the report should improve reproducibility and transparency of the information provided in the Economic SAFE report. The "fishery evaluation" component of the SAFE continues to grow as Ben has continued to work on a group of indices which provides insight into how fishery revenue is impacted by changing prices, quantity, and product types.

The ESSRP held meetings and conducted a survey of some SAFE users this year to elicit feedback on ways the document could be improved. While some useful feedback was received, users seem to have particular parts of the SAFE that they utilize and there have not been any suggestions for major changes. The ESSRP always welcomes feedback on how to improve the document. Mike Sigler requested that information from Fisheries of the United States be

included that will make it easy to see the share of fisheries catch and revenue that comes from Alaska fisheries.

The overall format of the Economic SAFE document is similar to past years, but it is now being automated through R, Sweave, and LaTex. Please feel free to give feedback on any formatting issues, as the new system is being refined and the formatting is being done automatically for the first time.

Ron discussed new work that is planned for coming years. Funding is being pursued to update and expand the market profiles that are currently in the document. Price forecast and time-series analyses of trends are underway. New summary information of Amendment 80 cost data and Bering Sea pollock fuel and salmon trade data will be included. AFSC is participating in a nation-wide NMFS project to calculate "catch share performance metrics." There are several tiers of metrics, with Tier 1 metrics involving relatively straightforward calculations (e.g., active vessels, season length, discards) while the Tier 2 metrics require more analysis (e.g., productivity (how efficient vessels are at catching fish), net revenues, and quota lease prices). Julie Bonney commented that quantity is important and well as ex-vessel value – how much freighting or secondary processing a product has may have a larger impact on the processing labor force and the community. Ron agreed and noted that these tiers of metrics were established at the national level and additional metrics could potentially be developed for Alaska.

One member of the public (Jon Warrenchuk of Oceana) asked whether there is any info that would help us evaluate the OY for the fishery. Ron responded no, but Alan Haynie raised the question of at what point in the Council process should economic research be included that considers MEY, which might suggest that the greatest economic benefits could potentially come from a stock level below MSY. Ron mentioned that Mike Dalton is conducting research in this area for the crab fishery where the largest amount of economic data is currently available. There was some discussion of whether or not MEY information should be in the Plan Team process in a manner similar to what's included about the ecosystem. The Plan Teams are interested in seeing more of this work in the future, but did not make a recommendation as to where information should be presented.

Ben Fissel presented information from the value indices that he has developed that are contained in the SAFE. In general, the idea is that value=price*quantity and the index permits an examination of how revenues or value change with changes in product, prices, and quantities by species, sector, and region. Indices are broken down by region (BSAI vs. GOA) and sector (at-sea vs. shoreside). Ben discussed several changes observed this year, such as an increase in value of H&G products for the at-sea sectors, including Bering Sea pollock. On another note, Mary Furuness noted that the Council is considering use of pots for sablefish in the GOA.

Retrospective Analysis

Several retrospective analyses were presented during the Plan Team meetings as requested. This paragraph lists a subset as well as a brief statement of results for each. Dana Hanselman presented a retrospective analysis for sablefish. Jim Ianelli suggested examining time-varying fishery selectivity in the sablefish assessment model, which may reduce the retrospective effect found there. Grant Thompson presented retrospective analyses for Pacific cod in the EBS and AI. In both cases, Grant found that there were substantial differences in models with reduced data. The result was that ending year biomass tended to be overestimated in the EBS and

underestimated in the AI (it should be noted that the AI model is exploratory only, as no age-structured model has yet been accepted by the SSC for AI Pacific cod). Paul Spencer presented a retrospective analysis for the Aleutian rougheye/blackspotted rockfish model. Paul also presented a retrospective analysis for the Aleutian Pacific ocean perch model. Paul found that the ending biomass typically was underestimated in models with reduced data. Paul also presented a retrospective analysis for the Aleutian northern rockfish model. Paul found that the ending biomass typically was underestimated in models reduced by 5-10 years of data but were similar in models with more years of data. Jim Ianelli presented a retrospective analysis for Bering Sea pollock. Jim found no consistent pattern in the retrospective information (no consistent pattern above or below the full data run). Steve Barbeaux presented a retrospective analysis for Greenland turbot. Steve found that ending biomass typically was overestimated. Buck Stockhausen presented a retrospective analysis for Bering Sea flathead sole. Buck found that ending biomass typically was overestimated. Sandra Lowe presented a retrospective analysis for the Atka mackerel model. Sandra found that the ending biomass typically was underestimated in models reduced by 8-10 years of data but was overestimated in models with more years of data. The retrospective working group plans to compile the retrospective analyses and will examine them for patterns. Grant suggested considering comparisons not just to the terminal run, but to other runs as well (e.g., as in the 2011 Pacific cod assessments). The retrospective working group plans to present this examination at the September Plan Team meeting.

Next Meetings

September 10 - 13, 2013 and November 18 - 22, 2013.

Attendance

Approximately 30 people attended the Joint Team Meeting, including AFSC staff and members of the public.

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David Barnard	ADF&G	Bill Clark	IPHC
Leslie Slater	USFWS		

*attended part of the meeting

The BSAI Groundfish Plan Team convened on Tuesday, November 13, 2012, at 2:00 pm, following completion of the Joint Groundfish Plan Team meeting.

Ecosystem Chapter: (Aydin) Stephani Zador presented a BSAI-focused report of the EBS and Aleutian Islands report cards, including hot topics, for discussion. The overall synthesis is reported in the introduction. Commentary by individual Plan Team members and members of the public included the following:

- It was noted that it should be made abundantly clear that seabird bycatch reported is extrapolated numbers, not actual numbers. Attempts have been made in the document to ensure that this is clear.
- Guild totals are useful, but future reports should include within-guild diversity. An expanded contribution on guild structure is planned for next year.
- For the Aleutian Islands, bottom temperature is a poor measure of habitat, due to the progression from east to west throughout the survey (timing).
- Considerable discussion focused on the 2012 survey results for the Aleutian Islands. Steve Barbeaux noted that pollock tend to move with temperature, while POP remain at constant depths regardless of temperature; so colder temperatures might make pollock less catchable. This is magnified by AI topography where pollock can move off the shelf break and decrease availability to the survey. Overall, there was insufficient information on the relative population versus catchability effects of temperature in the AI survey.

Eastern Bering Sea pollock: Jim Ianelli presented the assessment. Summaries of the assessment and recommendations for harvest specifications are given in the introductory chapter of the SAFE Report. In the interest of brevity, they are not repeated here.

Other points made during Team discussion included the following (note that these do not necessarily reflect Team consensus):

1. Regarding the decision table, last year's Team request was intended to address long-term probabilities, whereas Jim has focused on short-term. Although short-term metrics

may be easier for people to understand, we are trying to come up with a policy that will stand the test of time.

2. In order for the decision table to translate into a harvest policy, it will be necessary to assign an appropriate weight to each of the performance measures, which will not be an easy task.

3. Jim recently published a paper that looked at long-term forecasts for EBS pollock, which showed higher variability in catches and increased probability of falling below *B20%* (given anticipated changes in climate).

4. The "hole" in the age structure resulting from poor recruitment in 2002-2005 is still a concern.

5. Figure 1.23 seems to show that year class strengths are becoming more evenly distributed.

6. Figure 1.40 shows a sharp drop in age structure diversity, beginning in 2009 and continuing through the present.

7. Pollock harvests in the vicinity of 1.4 million t have been experienced previously only when biomass was above average.

8. The Tier 3 maximum permissible ABC (1.45 million t, for 2013) should be viewed as a limit, even though the SSC has determined that the stock qualifies for management under Tier 1.

9. The harvest control rules for Tier 1 should be revisited, with a view toward widening the buffer between OFL and maximum permissible ABC.

10. This stock should not qualify for management under Tier 1.

11. Setting ABC lower than the maximum permissible value gives a false perception of conservatism and "being precautionary."

The Team commends the authors for responding to the Team's request for a systematic evaluation of alternative harvest rates lower than the MSY level. The Team encourages the authors to continue development of this evaluation, which could be extended to other stocks as well.

The Team also commends the authors for responding to the Team's request regarding total catch accounting.

Aleutian Islands pollock: Steve Barbeaux presented the assessment. An Aleutian Islands trawl survey was conducted in 2012. The resultant biomass estimate was the lowest ever, but follows several surveys of relatively low values. Recruitment for the population has been lower than average since 1989. The authors completed a retrospective analysis and found little consistent pattern of overestimating or underestimating biomass. The Team concurred with the authors' recommendation to manage this stock under Tier 3b.

Long-standing practice is to use arithmetic mean recruitment for computation of reference points (e.g., B40%). However this stock has a single year class that is much stronger than the rest. The median value may be a more appropriate measure of the central tendency of these recruitments.

The Team recommends that the Recruitment Working Group examine use of median recruitment (or other measure(s) of central tendency) as an alternative to mean recruitment for calculation of reference points.

The Team commends the authors for responding to Team requests regarding total catch accounting and retrospective analysis.

Bogoslof pollock: Jim Ianelli presented the assessment. A survey for Bogoslof pollock was conducted this year (2012). Small amounts of pollock are caught as incidental catch. The stock is managed under Tier 5. The Team concurred with the author's recommendations for OFL and ABC.

The Team commends the authors for responding to the Team's request to include the random effects model as a procedure for smoothing the survey biomass estimates.

BS/AI Pacific cod: Grant Thompson presented the assessment. Following suggestions from Team/SSC meetings in May/June and September/October, he had fitted four models. The base model, used for making specifications in 2011 and designated Model 1, had the following features, many of long standing:
- $M = 0.34$
- Length-specific commercial selectivities for all fisheries, some forced to be asymptotic, estimated for blocks of years (as before).
- Age-specific survey selectivity with annually varying left limb.
- Survey catchability fixed at the value obtained in the 2009 assessment (0.77), where it resulted in the product of catchability and selectivity at 60-81 cm equal (on average) to the desired value of 0.47 in the EBS. The desired value was based on a small number (11) of archival tags.
- A single growth schedule for all years.
- Intercept and slope of age reading bias estimated internally.
- Standard deviation of length at age estimated internally.
- Mean length at age data left out of the fit.
- All length composition data included in fit.

Model 2 was the same as Model 1 but with survey catchability estimated freely. Model 3 was the same as Model 1 except that the age composition data were not used (i.e., left out of the log likelihood). Models 2 and 3 had been requested by the Team as checks on Model 1, not as candidates for setting specifications.

Model 4 was a simplification of the "author's preferred model" from 2011. It has many fewer parameters than the other models and it differs from Model 1 in many ways, among them:
- Improved modeling of weight at length.
- Initial numbers estimated at 10 ages rather than 3.
- The full Richards growth equation used rather than the von Bertalanffy.
- Survey selectivity estimated as a function of length rather than age.
- Fisheries defined (and selectivities estimated) for each of five seasons with gears combined.
- Age composition sample size multipliers tuned iteratively to make the standard deviation of the normalized residuals equal 1.

The fits of the four models were similar in most respects, including selectivity estimates, fit to age and size compositions, agreement with survey length frequency modes, agreement with survey abundance data, and (except for Model 2) estimates of present abundance. The dissimilarities were:
- Model 2 estimates survey catchability (freely) at about 1 and therefore estimates present abundance to be much less than the other models, where catchability is fixed at 0.77. Model 2 also fits the survey abundance data much better, with RMSE=0.16 compared with around 1 for the other models.

- Model 3 fits the age composition data poorly. (It doesn't try.)
- Model 4 fits the survey size composition data much better than the others, an indication that length-based survey selectivity (rather than age-based) is appropriate.

Grant reported jitter tests in which a (presumably) global minimum was first located by an exhaustive procedure of perturbing the minimizing parameter vector at a succession of local minima until no further improvement was possible. The final parameter vector was then perturbed and the model refitted to see how often each model fit could relocate the global minimum. All of the models performed more or less poorly, relocating the global minimum only around half the time. On the other hand, all of them except Model 2 produced a present biomass estimate very close to the correct number in almost every trial. The Team had some discussion of the relevance of jitter tests to model selection and eventually concluded that they were not relevant, so long as the author followed a procedure akin to Grant's for locating the global minimum.

The Team recommends that jitter tests continue to be conducted, but statistics related to jitter tests do not need to be reported in future assessments.

Grant stated that he wanted to do more work on Model 4 before proposing its use for setting ABC and OFL. The Team agreed to that, so Model 1 was left as the sole candidate and a solid performer in most ways but not in retrospective performance. In retrospective runs, successive estimates of abundance in a given year have been steadily revised downward as each new year of data is added. At the extreme, the estimate of 2008 spawning biomass from a fit to data through 2007 was 70% higher than the estimate of 2008 spawning biomass from a fit to data through 2012. The Team had a brief discussion of the implications of poor retrospective performance for setting ABC and OFL. Clearly the retrospective differences add to the uncertainty of the biomass estimates, but for the time being we continue to believe that the best estimate of present abundance is the one from the most recent assessment. (The Joint Teams have appointed a retrospective working group that is examining the retrospective behavior of all groundfish assessments.)

Having accepted Model 1, the Team had a lengthy discussion of whether the ABC/OFL recommendation should be lower than the standard Tier 3a value. The main issue was the survey catchability coefficient and whether it was prudent to discount the high catchability (and low biomass) estimated by Model 2. The low fixed value in the other models is based on data on the vertical distribution of 11 fish obtained from archival tags, which suggests that they were above the survey trawl headrope a good deal of the time. However other studies suggest that cod (and other species) tend to dive to the bottom when a trawl approaches. Bob Lauth reported (as he had in September) that comparative tows made with the low-opening Bering Sea survey trawl and the high-opening GOA survey trawl appeared to catch about the same quantity of cod. (A full report will be available next year.) He also related that the echo sounder showed few fish in midwater during the comparative tows when cod were plentiful on the bottom, and that midwater trawling during acoustic surveys for pollock in the summer encountered few cod. On the other hand, he reported that at least one exploratory tow in shallow water, inshore of the survey area, had brought up a very large catch of cod, so it may be true that in summer a sizable proportion of the stock is near shore and unavailable to the survey. In the end the Team decided to continue to rely on the lower fixed survey catchability both for fitting the model and setting ABC. The Team therefore agreed with the authors' recommended ABC/OFL.

The Team commends the authors for responding to every single Team request, of which (as is customary for Pacific cod) there were a large number during the past year.

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Aleutian Islands cod assessment progress report: The Team has recommended, and the SSC has decided, that a separate age-structured assessment should be conducted for AI cod. Grant Thompson had reported on a first version in September and gave an update at this meeting. This report was for information and feedback. The Team had no decisions to make. There will be further discussion at the May meeting.

Grant reported on four models, all fitted to length composition and survey abundance data. (There are no age data for the AI.)
- Model 1 is broadly similar to the base EBS Model 1 but simpler, with only one fishing season, one gear, constant selectivity, and survey catchability tuned so that the product of catchability and survey selectivity at 60-81 cm equals the Nichol estimate of 0.92 for the AI survey trawl.
- Model 2 has time-varying growth parameters.
- Model 3 has input sample sizes multiplied by ⅓.
- Model 4 is much different from Model 1. Key differences: survey data before 1991 were left out, survey catchability was allowed to vary among years, survey selectivity was forced to be asymptotic, fishery selectivity was not and input sample sizes of length composition data were tuned iteratively to standardize residuals.

All of the models fit the fishery and survey size compositions reasonably well, but all of the fits have some undesirable features. Models 1-3 estimate steeply peaked survey selectivities that are not credible, and they overestimate survey abundance data in the 1990s by a wide margin while estimating biomass levels far in excess of B100%. Meanwhile Model 4 estimates biomass levels near zero in the early 1980s.

Illustrative fits of Model 3 produced estimates of ABC well below recent cod catches from the AI, suggesting that catches in the Aleutians may have to be severely curtailed when a separate AI assessment is adopted.

There was a long discussion of the pros and cons of using the survey data from the 1980s, when many stations were sampled by Japanese commercial trawlers. The main concerns were lack of standardization of nets on the Japanese vessels, selection of likely productive tow locations by Japanese fishing masters, and lack of net mensuration data on all vessels.

Grant identified a number of key questions: whether the possibly high biomass in the 1990s was a spillover from the EBS, whether survey catchability should be fixed or estimated freely, whether to use the 1980s survey data or not and whether to force survey selectivity to be asymptotic or not. Various opinions were offered by individual team members. A member of the public related that the occurrence of cod in the Aleutians is spotty and transient, so the survey is a hit-or-miss affair.

The Team commends the authors for responding to the Team's request for inclusion of specific alternative models in this exploratory assessment.

Sablefish: See Joint Plan Team minutes.

Yellowfin sole: Tom Wilderbuer presented the assessment. Model 1 was used for the assessment, but all 4 models that Tom presented gave similar trends. As in past assessments,

only year classes spawned after 1977 are used for the spawner-recruit relationship, which has a large effect on implied productivity. The Plan Team reaffirmed their support for Model 1.

Greenland turbot: Steve Barbeaux presented the assessment. There were many changes from the previous year, most notably changes in the weight at age and selectivities. These had the net effect of reducing the current biomass estimate while increasing the reference points for this species. In addition to changes to the assessment model and data, there was an input error in the 2009-2011 projection models that resulted in underestimates of all biomass reference points (for example, B100% went from 53,900 t last year to 119,000 t this year). As a result of all of the above, ABC dropped from roughly 10,000 to 2,000 t. This most likely will result in no directed fishery for the upcoming season. It was also noted that the TAC has not been reached over the past number of years. Members of the public cited difficulties due to weather issues and killer whale predation (it is not worth fishing if whales are present) as reasons for this. Steve also noted that recruitment has been good over the past few years and he is confident that things will improve over the next few years. Industry representatives agreed with this, based on what they saw on the grounds in terms of the size of turbot in their catches. There was also discussion about using mean vs. median recruitment to estimate biomass reference points for this stock (and others with large, "episodic" recruitment events; see Team recommendation under AI pollock).

The Team commends the authors for responding to the Team's request regarding retrospective analysis.

Arrowtooth flounder: Ingrid Spies presented the assessment. The assessment used the same model as last year with updated biomass estimates and size composition data from the 2012 EBS shelf, EBS slope, and AI surveys, 2010 and 2011 fishery size composition data, and estimates of catch and discard from the 2012 fishery. Updates to female maturity made using a different data set (Stark) resulted in significantly lower values of female spawning biomass. The author asked for comments from the Team for two issues: incorporating the Stark female maturity data in the model, and estimating M for males in the model while holding M for females fixed. The Plan Team suggested the author investigate ways of combining the new data with the maturity data used previously and present the results at the 2013 September meeting. If there is a notable change to the maturity schedule the assessment should be updated at the author's discretion. The Team also expressed concern about the author's method for estimating the parameters of the maturity schedule, which involved averaging parameter estimates obtained from two different collections: Because the maturity curve is nonlinear, it is not clear that averaging parameter values will result in a good estimate.

There was discussion of methods for selection of M. Specifically, where a likely value is chosen for inclusion in the model as a fixed parameter, then in a subsequent run M is estimated in the model, and if there is no improvement in the AIC the original assumed value is used. It was suggested that this is an inappropriate use of AIC; if fixed values are going to be compared to estimated values, a greater number of fixed values should be explored. In light of the significantly reduced biomass, OFL, and ABC estimates resulting from the new female maturity relationship and concerns over the method used to estimate the maturity parameters (which was not previewed in September), the Team decided to use the 2013 estimates obtained from the 2011 assessment and revisit the model in September of the next year in which the assessment is updated (it would be up to the author to decide whether the assessment needs to updated outside the normal two-year cycle).

The Team commends the authors for responding to the Team's request to explore internal estimation of the natural mortality rate.

Kamchatka flounder: Tom Wilderbuer presented the assessment. This is a tier 5 assessment. A tier 3 model has been reviewed by the Plan Team and the SSC; both suggested changes, and asked to see it again next year. It was pointed out by an industry representative that the tier 3 assessment is important for MSC certification of the fishery for this stock.

The assessment was updated with the latest survey data from the AI, BS slope, and BS shelf. Natural mortality was evaluated from four separate methods, arriving at a new value of M = 0.13. Biomass was determined using a running average of seven years. Kamchatka flounder were targeted in 2012, so catches for that year are much higher than years before or after.

The Team accepted the updated natural mortality estimate. The current assessment and estimates were reasonable and the Team accepted the estimated OFL and ABC.

The Team recommends that the authors provide a preliminary assessment next September that addresses the suggestions made by the Team/SSC in September/October of this year.

Northern rock sole: Tom Wilderbuer presented the assessment. There were no model changes in the author recommended model. The SSC had suggested constraining Q, so the author tested priors on Q and ran models 2 – 7. The author still chose model 1 because of lack of fit to the observed sex ratio for models 2 - 7. Temperature appears to have some effect on catchability of northern rock sole. In Model 7 the relationship of Q and bottom temperature was tested. In the future, the author might change from model 1 to model 7 which incorporates a temperature relationship, but further testing is needed.

Flathead sole: Buck Stockhausen presented the assessment. The flathead sole complex consists of flathead sole and Bering flounder. The assessment used the same model as last year, updated with the latest survey, fishery catch, size, and age data. The presentation included discussions of residual plots for model fits to the fishery and survey age and size composition data, and retrospective analyses of the spawning and total biomass estimates from the model. The recommended 2013 estimates of OFL (81,500 t) and ABC (67,900 t) are slightly lower than last year's estimates for 2013; there is no overfishing and the stock is not overfished. The Plan Team accepted the author's model and agrees with his recommended OFLs and ABCs.

Alaska plaice: Tom Wilderbuer presented the assessment. The model was unchanged. Catchability is fixed at 1.2 and does not vary with temperature. Numbers nearly match those forecast last year. The stock has low variation in recruitment and low exploitation rates (2.6%). In 2010, the northern Bering Sea also was surveyed and 38% of the surveyed biomass was found there. The authors are still trying to figure out how to incorporate that survey information into the model as it is important, but it also is unlikely that the northern survey will happen again anytime soon. It was noted that the author used data from the pre-1982 surveys, which is not done in any other assessment. Tom said that he plans to remove those data in next year's assessment. Mike Sigler requested that the author complete retrospective analyses for the flatfish species, which the PT retrospective working group will examine next year (along with several other groundfish species).

Other flatfish: Tom Wilderbuer presented the assessment. This is a non-target species complex for which starry flounder, rex sole, and butter sole are the major components; most are caught in BS and not in AI. Catch is very small compared to ABC. Sometimes butter sole catch exceeds survey biomass, but is not deemed a problem because this species is at northern periphery of its range. This group is Tier 5 and the Plan Team supports the author's recommendations.

Pacific ocean perch: Paul Spencer presented the assessment. The 2012 bottom trawl survey came in at a large value, similar to 2010. Much of the biomass in the AI was from several large tows in the Eastern AI. The EBS slope survey has increased about three-fold since 2002. The fishery age compositions are remarkably consistent in showing strong year classes. There is also a new maturity curve which lowers the age at 50% maturity. Model changes included changing the plus-age group and removing the biased ages from 1977-1980.

The new maturity curve is fitted to two sets of new maturity data inside the model. The previous Gulf of Alaska maturity data have been removed from the model. Paul analyzed the effect of the plus-age group of model fits and showed evidence supporting an increase to 40 years and older. The retrospective trend shows that the modeled perception of the biomass has increased over time. The recruitment estimates have changed little since the 2010 assessment, except that the 2000 year class looks larger. The increase in total biomass was mainly due to the decrease in catchability, while the increase in SSB and ABC was related to the lower maturity at age and the lowering of catchability.

Paul also explained how a stock like POP can rebound so quickly. It occurs when there are a group of very large year classes in the quickly ascending part of the growth curve. Bill Clark was surprised at the lack of fit to the plus group. Paul said that the model can't fill those plus groups fast enough to catch up to the observed plus groups. Dana asked about fishery selectivity being estimated for 2012 without 2012 fishery data and Paul said he would check on that.

Paul showed several model runs that explored fixing catchability and seeing the effects of adding age and length comps by themselves. Mike asked what amount each new input contributed to the increase in ABC. Paul attributed about half to the survey biomass and half to the new maturity curve. Dana pointed out that, if taken, this would be the highest POP catch since the 1960s and asked how much was due to the change in plus group. Paul showed that it was minor and only added about 20,000 t to total biomass.

The Team concurred with the use of the new maturity data and the minor model changes. Some questions were discussed about why the estimated catchability decreased so much. The Team agreed with the author's recommendation for maximum permissible ABC. The former concern about one large survey biomass estimate greatly increasing the ABC was alleviated by a second large survey biomass estimate.

Northern rockfish: Paul Spencer presented the assessment. Northern rockfish had the biggest change in model performance/results of the BSAI age-structured rockfish models because of re-estimating the ageing error matrix. Paul did an analysis to those done for the other rockfish stocks to look at the plus-age group and ageing error matrix.

Bill Clark pointed out that one tow in 2012 increased the biomass in WAI by 50%. The age at 50% maturity decreased by almost four years with the use of two new maturity studies. The old maturity data from the Gulf of Alaska are no longer being used. Like POP, the fishery age composition tracks year classes better than the survey.

The new ageing error matrix gave better fits to the age compositions near the plus group because the amount of fish in the plus group was so large in the previous model. The 2012 survey biomass estimate is not fit very well because of its imprecision.

Paul showed some work on area-specific exploitation rates. He noted that, with the new maturity curve, exploitation rates do not look as high as they did in September relative to reference point proxies. Dana asked why the stock did not increase as much as the change in the maturity curve like POP did. Paul said it was because the catchability value cannot move very much.

The Team concurred with the author's recommended maturity curve, ageing error matrix change, and the extension of the age bin structure. The Team agreed with the author's recommended ABC and OFL values.

Blackspotted/rougheye rockfish: Paul Spencer presented the assessment. The AI portion of the stock is assessed with a Tier 3 model and Bering Sea with Tier 5 methods. Paul discussed the modeling change that he made this year, which was to recompute the age error matrix to better account for aging error in the ages in the plus group. This had some impact, but not as much as for northern rockfish.

Paul presented 3 "items to consider:" 1) calculation of B40%, 2) recent harvest of immature fish, and 3) disproportionate harvesting in the W. Aleutians.

Calculation of B40%. The 1998 and 1999 year classes are very strong. In the last assessment update in 2010, the post-95 year classes were excluded because of high CVs *on average*. However, in both the 2010 and 2012 assessments the strong year classes, which had the largest effect on the computation of mean recruitment and B40%, had low CVs. The Team no longer feels that the 1998 and 1999 year classes can be called 'imprecise." However, the Team continues to feel that these year classes should be excluded from computation of B40% because B40% is based on spawning biomass for an equilibrium stock and the 1998 and 1999 year classes have not reached the age of 50% maturity (i.e., the Team feels that it is inappropriate to include them in the spawning biomass reference point when they are not yet part of the spawning biomass). Total biomass and spawning biomass are expected to increase over the next several years due to the growth and maturation of individual fish in the 1998 and 1999 year classes.

Recent harvest of immature fish. Blackspotted/rougheye rockfish live long and mature late -- maturity is 18 years and 44 cm. Recent catches include many immature fish, especially from the recent strong year classes. Because the strong year classes are also observed in the survey data, the recent harvest of immature fish is thought to reflect increased abundance rather than a temporal shift in fishing selectivity

Disproportionate harvesting in W. Aleutians. Analysis indicates there is spatial structure in the population, so the BSAI ABC has been partitioned between 2 areas (EAI+EBS and WAI+CAI). Paul extensively discussed area-specific exploitation rates, which were at or above U40% (the exploitation rate which would occur from fishing at F40%, reflecting numbers at age and fishery selectivity) in the WAI each year from 2004 to 2012 except 2011 (often by large amounts). Additionally, the 2012 survey biomass estimate for the WAI is the lowest observed, and the pattern of declining survey biomass estimates in the WAI is consistent with the estimated high exploitation rates.

In the written assessment, Paul noted that "the BSAI Plan Team may wish to consider not increasing the harvest specifications from the 2012 levels due the factors mentioned above…" but he recommended an increase in ABC and OFL based on his preferred model. In the presentation, Paul further emphasized the concerns that he raised and suggested that the most prudent course would be to rollover the current ABC and OFL. This recommendation was largely based upon the inconsistency between the rationale applied in 2010 for excluding large year classes (high CVs) from the computation of mean recruitment and B40% and the increased proportion of the biomass and catch comprised by the large 1998 and 1999 year classes, and the absence of a thoroughly investigated, long-term solution for addressing unusually high recruitment events that can substantially alter perception of stock status (see Team recommendation under AI pollock).

The Team acknowledged Paul's concerns, but accepted the model recommendation in the document for the values for ABC and OFL that were based on excluding the post-1998 year classes from the estimation of mean recruitment. The Plan Team also noted that rolling over the current harvest specifications would not address the issue of disproportionate harvesting, and the spatial management of this stock will likely be considered in further discussions on stock structure.

Shortraker rockfish: Paul Spencer presented the assessment. As in past years, this assessment uses a surplus production model to estimate current biomass, but not other reference points. No changes were made to the model, which was re-run with the most recent catch and the 2012 survey data. While the AI biomass has been decreasing, the Bering Sea slope survey biomass has been increasing, although it remains a small part of the stock. The survey biomass estimates are sometimes strongly influenced by a small number of large tows.

Paul noted that shortraker are mostly caught as bycatch in the POP fishery. He also noted that there are a number of large fish (>70-80 cm) caught in the fishery, although these are on average larger than what is caught in the survey. There is no overall trend in catch, but it is variable.

The Team commends the authors for responding to the Team's request related to total catch accounting.

Other rockfish: Ingrid Spies presented the assessment. There were new surveys in the AI, BS Slope, and S. Bering Sea. Shortspine thornyhead are increasing in the Aleutians. Dusky rockfish were caught in their usual range. The length frequencies are rough for dusky rockfish in the survey, but smooth for the fishery with a median size of around 45 cm in the fishery. Thornyheads were concentrated in the western Aleutians.

Ingrid also presented a random effects model for smoothing biomass estimates (not included in the SAFE chapter). The model estimates were close to the survey point estimates except when there were extreme values, but it was noted that the extreme values were typically associated with large variances. Henry Cheng asked what the parametric form of the model was; Grant said that documentation would be forthcoming from the working group on survey averaging.

The biomass estimates from only the EBS slope and AI are used for assessment purposes. Chris Siddon asked if we would expect to see such large changes in abundance for long-lived species. Ingrid responded that it was probably sampling error because they are rare and patchy.

The assessment is a straightforward update of the 2010 Tier 5 assessment. The Plan Team accepted the author's recommendations for ABC and OFL.

Atka mackerel: Sandra Lowe presented the assessment. There were two significant changes in assessment methodology: (1) Recruitment variance is now estimated; in past assessments, it was fixed at 0.6; (2) Prior penalty on degree of dome-shape in fishery selectivity is now fixed at 0.3; in recent past assessments it was fixed at 0.1. The following new data were included in this year's assessment: (1) updated fishery catch data; (2) 2011 fishery age composition data; (3) 2011 fishery weight-at-age values; (4) 2012 Aleutian Islands survey data (biomass data were used in the model; length and age compositions were presented but not included in the model due to time constraints); (5) 2012 selectivity vector (equivalent to the estimated vector for 1999-2011) was used for projections; (6) area apportionment of ABC was updated by adding the area biomass distribution from the 2012 survey and dropping the 2002 survey.

Allowing the log-scale recruitment standard deviation (sigma-R) to be estimated within the model made only a slight change in the value of sigma-R used in the model. In previous assessments, sigma-R was fixed at 0.6. Allowing it to be estimated within the model changed the value to 0.54.

The addition of the 2012 survey biomass (and other catch-at-age data) resulted in a higher value for age 4-10 catchability (q) in the survey (1.89) than had been estimated in 2011 (1.61) and in previous assessments (e.g., in 2004, q=1.4). The authors noted that plausible mechanisms for such a high (and increasing) q in this year's assessment are difficult to construct. The authors evaluated the model components affecting q, and determined that the primary factor was the penalty restricting the extent to which fishery selectivity was allowed to be dome-shaped (sigma-D). Increasing sigma-D (from 0.1 to 0.3 throughout the time series) allowed the fishery selectivity to be lower for fish older than 8 years than in recent assessments. This improved the fits to the fishery age composition and also reduced q to a more reasonable value (1.3). As noted in the Plan Team discussion, a dome-shaped fishery selectivity curve could be related to fish and fishery behavior, and changes in fishing regulations that reduced catches in near-shore areas (e.g., Steller sea lion critical habitat) in area 542 (and perhaps the closure of area 543), where larger fish have generally been caught by the fishery. A consequence of these changes to q and sigma-D, however, is that biomass is scaled higher throughout the time series. For instance, had changes to q, sigma-D, and sigma-R not been made (authors' Model 1), spawning biomass in 2013 was projected to be 219,000 t, or 31% lower than with the changes but with poorer fits to the fishery age composition and an unrealistic q. The Team agreed with the authors' recommendations for changes to the assessment methodology.

The Team commends the authors for responding to the Team's requests regarding total catch accounting and retrospective analysis.

Skates: Olav Ormseth presented the assessment. This year's assessment includes a revised model for Alaska skate. The following features stayed the same in the new model: (1) 3-year embryonic period, (2) M of 0.13, (3) fixed maturity, (4) fixed fecundity, and (5) survey catchability of 1.0. In particular, there is good evidence, including lab confirmation, of an extended embryo period for Alaska skate (viz., they spend 3.5 years in skate egg cases before hatching out). This feature is modeled as skates being unavailable to the fisheries and survey until age 3.5.

The new model differs from the old in the following respects: (1) uses an updated version of Stock Synthesis (version 3.23), (2) uses the 4-parameter Schnute growth function, which has

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more flexibility than the 3-parameter von Bertalanffy function, (3) allows selectivity functions for both fisheries (longline and trawl) and the survey to be dome-shaped rather than forced to be asymptotic, with the beginning of the peak region forced to equal 90 cm, 49 cm, and 49 cm for the longline fishery, trawl fishery, and survey, respectively, (4) uses a new density-dependent survivorship-based function to model the stock-recruit relationship, (5) raises the maximum age from 25 to 30 years because the 25+ group had too many fish in it, and (6) the new model starts in 1980. There are no species-specific catch or survey data for the 1980-1991 period, so annual catch is assumed to equal the 1992 value in each of these years, and the 1980 age structure is assumed to be in equilibrium under that level of catch. The author compared several alternative models and selected a preferred model that estimates all growth parameters and variability within the model and relied on only the most recent length-at-age dataset (from the 2009 EBS shelf survey). The new model provides an improved fit to the length-at-age data, results in biomass estimates that are slightly higher than from last year's model, and tracks the survey biomass more closely.

The Plan Team approved the author's preferred model, despite some concern over the rationale for excluding older length-at-age data (i.e. 2003, 2005, and 2007) from the model.

The Team recommends that the authors address the following for September 2014: 1) due to concerns about dropping the earlier length-at-age datasets, the authors should include a more detailed analysis of the various length-at-age datasets and whether it is appropriate to exclude them; 2) the authors should revisit the selectivity patterns, to justify the existence and estimability of a descending limb for all selectivities and to determine whether there is any interaction between data length bins and population length bins that affect the estimated selectivity patterns.

The Team commends the authors for responding to the Team's request for inclusion of specific alternative models in this assessment.

Sculpins: Ingrid Spies presented the assessment. This is a straightforward update from the last full assessment. Ingrid also presented the results from the random effects model for estimating biomass (not included in the SAFE chapter).

The Team recommends that any future presentations of the random effects model for sculpins include confidence intervals for the survey estimates.

Sharks: Cindy Tribuzio presented the assessment. This is a straightforward update incorporating 2012 catch and survey data. She made a strenuous but ultimately unsuccessful effort to determine the species composition of the substantial number of unidentified sharks in observer data (44% in 2006, 16% overall). A major issue this year was whether to use the halibut fishery incidental catch estimates (HFICE) produced by a working group in estimates of total shark catches, as suggested by the SSC. The authors had examined this question in detail and concluded that it was impossible to determine the degree of overlap between the HFICE numbers and the catches recorded in the NMFS catch accounting system (CAS). For that reason, and because observer estimates of incidental shark catch in the halibut fishery will be available soon, they recommended against using the HFICE numbers for ABC and OFL determination. The Team agreed with the authors, and supports their recommended ABC and OFL. As in the past, the Tier 6 ABC and OFL were based on historical catches, in this case the maximum rather than the average.

The Team remains concerned about the steep decline of sleeper shark catch rates in surveys and bycatch fisheries. Despite their large size, all of the sleeper sharks in the bycatch are juveniles, so the catches may be having little immediate effect on the mature stock, but in the long run the effect could be serious.

The Team commends the authors for responding to the Team's request regarding total catch accounting.

Squid: Olav Ormseth presented the assessment. This is an unchanged Tier 6 assessment based on a fixed window of catch years. Olav is tracking length compositions and survey distribution. Directed fishing in the past (before 1985) was high; the high catches in those early years is what makes the ABC and OFL reasonably high. Back in 2005-2007, catches were close to the OFL but more recently the fisheries are trying to avoid squid; catches dropped abruptly between 2008 and 2009; geographically, it has come up in area 541 in the Aleutians. Multiple cohorts of *Berryteuthis* seem to be visible in the length composition within a year, and perhaps in the seasonal catch data also.

Octopus: Liz Conners presented the assessment. The Plan Team continued to support the authors' predation-based estimate of octopus mortality from 1984-2008 survey data of Pacific cod diets as an alternative Tier 6 estimate. The estimate has not been revised from last year. The 2012 assessment expanded the discussion of the methodology and uncertainty of the assessment. While Pacific cod diet appears to be a better sampling method for octopus than the trawl survey, the consumption estimate is slightly lower than at least one Tier 5 estimate (3,450 t versus 4,020 t, respectively), especially as other species eat octopus (in the Bering Sea, most other consumers of octopus are marine mammals for which quantitative estimates of consumption are not possible).

The 2011 catch was the highest recorded and exceeded 2011 OFL and ABC; therefore overfishing of octopus occurred that year; however the alternative Tier 6 approach that was adopted in 2012 and recommended for the future is less constraining on the fishery, while providing an improved basis for setting harvest specifications for this assemblage.

The Team recommends that the predation-based estimate of mortality be recalculated approximately every 4-6 years.

The Team recommends that, for the next assessment in 2014, the authors include a test for time trend of consumption and an analysis of the AI Pacific cod diets.

The Team commends the authors for responding to the Team's request for a discussion of the data needed for a discard mortality analysis.

Grenadier: Dana Hanselman presented the assessment, which was authored by Cara Rodgveller, Dave Clausen, and Pete Hulson. A preliminary assessment was presented to the Team in September. Giant grenadier is the indicator species for the group, which also includes popeye and Pacific grenadiers. The authors continue to present Tier 5 recommendations. In the BSAI, estimated biomass is over 1 M mt. A paper on including grenadiers in the FMP was discussed at the June Council meeting. The preferred option of the authors for both FMP areas is to classify grenadiers as "in the fishery," given its high biomass and ecological importance on the continental slope. A potential compromise is to put the GOA stock "in the fishery" because of higher catch and the BSAI as an "ecosystem component" because it is not a target species and

not subject to overfishing and is not overfished. In the past, the Plan Team has recommended that grenadiers be moved into the FMPs.

The Team commends the authors for responding to the Team's request to include the random effects model as a procedure for smoothing the survey biomass estimates.

Stock structure: Dana Hanselman presented the current status of completion of stock structure templates in the BSAI. So far, 7 stock structure templates have been completed, with 17 remaining. Dana recommended, for the September 2013 Plan Team meeting, that the stock structure template be applied to the following three stocks:

1.   Aleutian Island pollock, as an example of a stock that is managed as an "AI only" stock, with a discussion of the rationale for this;
2.   Shortraker rockfish, as an example of a long-lived Tier 5 stock that has moderate data availability; and
3.   Flathead sole, as an example of a mixed-species stock complex that has both a dominant species and a much less abundant species (Bering flounder).

The Team concurred with Dana's recommendations, and expects that these three stocks will show good contrast from each other, thus aiding the stock structure working group in future work related to management units.

The Team recommends that the stock structure template be applied to AI pollock, shortraker rockfish, and flathead sole for the September 2013 meeting.

FOR NEXT YEAR:

Age+ biomass: Values listed in the stock-specific header tables in the introduction of the SAFE report will be based on the age+ range that the author(s) report in each assessment. In cases where the author's age+ range differs than the range that has historically been listed in the header table, the Team will work with each author to reconstruct a time series that is consistent with the author's range.

Significant Digits: The Team will use age+ biomasses, OFLs, and ABCs as reported by the authors (unless the Team is explicitly recommending different values on the basis of methodological or other issues); it will no longer apply its long-standing approach of rounding to 3 significant digits.

Off year cycle: The following table shows the assessments that the Team is expecting to see in 2013. The "off cycle" stocks include most Tier 5 and 6 stocks and some Tier 3 stocks that are either lightly exploited or whose assessments depend heavily on either the EBS slope or AI surveys (which will not be conducted in 2013). Assessments of stocks that are key prey of Steller sea lions (pollock, cod, and Atka mackerel) are among those that are expected annually.

On year cycle in 2013:	Off year cycle in 2013:
EBS pollock	all rockfishes
Bogoslof pollock	flathead sole
AI pollock	Alaska plaice
Pacific cod	Other flatfish
Sablefish	skates
Greenland turbot	sharks
Yellowfin sole	squids
Northern rock sole	octopus
Arrowtooth flounder	sculpins
Kamchatka flounder	
Atka mackerel	

OTHER BUSINESS:

Forage Fish: Olav Ormseth submitted a BSAI forage fish report in response to an SSC request. The Team did not review the report because most members were unaware that it had been submitted for review. It was not included in the SAFE report. The Team will review the report next year.

Attendance: Attendance fluctuated by assessment, but peaked at 50 (public and agency) during the EBS pollock assessment review.

Adjourn: The Team adjourned on Friday, November 16, 2012, at 4:30 pm.

Table 1. BSAI Groundfish Plan Team Recommendations for Final OFLs and ABCs (mt) for 2013 and 2014.								
		2012				**2013**		**2014**	

Species	Area	OFL	ABC	TAC	Catch	OFL	ABC	OFL	ABC
Pollock	EBS	2,474,000	1,220,000	1,186,000	1,202,560	*2,550,000*	*1,375,000*	*2,730,000*	*1,430,000*
	AI	39,600	32,500	19,000	972	45,600	37,300	48,600	39,800
	Bogoslof	22,000	16,500	500	79	13,400	10,100	13,400	10,100
Pacific cod	BSAI	369,000	314,000	275,000	223,939	359,000	307,000	379,000	323,000
Sablefish	BS	2,640	2,230	2,230	717	1,870	1,580	1,760	1,480
	AI	2,430	2,050	2,050	1,180	2,530	2,140	2,370	2,010
Yellowfin sole	BSAI	222,000	203,000	202,000	137,716	220,000	206,000	219,000	206,000
Greenland turbot	*Total*	11,700	9,660	8,660	4,401	2,540	2,060	3,270	2,650
	EBS	n/a	7,230	6,230	2,744	n/a	1,610	n/a	2,070
	AI	n/a	2,430	2,430	1,657	n/a	450	n/a	580
Arrowtooth flounder	BSAI	181,000	150,000	25,000	22,227	*186,000*	*152,000*	*186,000*	*152,000*
Kamchatka flounder	BSAI	24,800	18,600	17,700	9,558	16,300	12,200	16,300	12,200
Northern rock sole	BSAI	231,000	208,000	87,000	75,806	241,000	214,000	229,000	204,000
Flathead sole	BSAI	84,500	70,400	34,134	11,011	81,500	67,900	80,100	66,700
Alaska plaice	BSAI	64,600	53,400	24,000	16,124	67,000	55,200	60,200	55,800
Other flatfish	BSAI	17,100	12,700	3,200	3,452	17,800	13,300	17,800	13,300
Pacific ocean perch	*Total*	35,000	24,700	24,700	21,837	41,900	35,100	39,500	33,100
	EBS	n/a	5,710	5,710	3,280	n/a	8,130	n/a	7,680
	EAI	n/a	5,620	5,620	5,519	n/a	9,790	n/a	9,240
	CAI	n/a	4,990	4,990	4,800	n/a	6,980	n/a	6,590
	WAI	n/a	8,380	8,380	8,238	n/a	10,200	n/a	9,590
Northern rockfish	BSAI	10,500	8,610	4,700	2,474	12,200	9,850	12,000	9,320
Blackspotted/Rougheye	*Total*	576	475	475	204	691	569	704	604
	EBS/EAI	n/a	231	231	74	n/a	241	n/a	254
	CAI/WAI	n/a	244	244	130	n/a	328	n/a	350
Shortraker rockfish	BSAI	524	393	393	305	493	370	493	370
Other rockfish	*Total*	1,700	1,280	1,070	924	1,540	1,160	1,540	1,160
	EBS	n/a	710	500	191	n/a	686	n/a	686
	AI	n/a	570	570	733	n/a	473	n/a	473
Atka mackerel	*Total*	96,500	81,400	50,763	47,755	57,700	50,000	56,500	48,900
	EAI/BS	n/a	38,500	38,500	37,237	n/a	16,900	n/a	16,500
	CAI	n/a	22,900	10,763	10,323	n/a	16,000	n/a	15,700
	WAI	n/a	20,000	1,500	195	n/a	17,100	n/a	16,700
Skate	BSAI	39,100	32,600	24,700	22,338	45,800	38,800	44,100	37,300
Sculpin	BSAI	58,300	43,700	5,200	5,469	56,400	42,300	56,400	42,300
Shark	BSAI	1,360	1,020	200	81	1,360	1,020	1,360	1,020
Squid	BSAI	2,620	1,970	425	678	2,620	1,970	2,620	1,970
Octopus	BSAI	3,450	2,590	900	132	3,450	2,590	3,450	2,590
Total	BSAI	3,996,000	2,511,778	2,000,000	1,811,939	4,028,694	2,639,508	4,205,467	2,697,673

Final 2012 OFLs, ABCs, and TACs from 2012-2013 final harvest specifications; total catch updated through November 3, 2012.

Italics indicate where the Team differed from the author's recommendation.